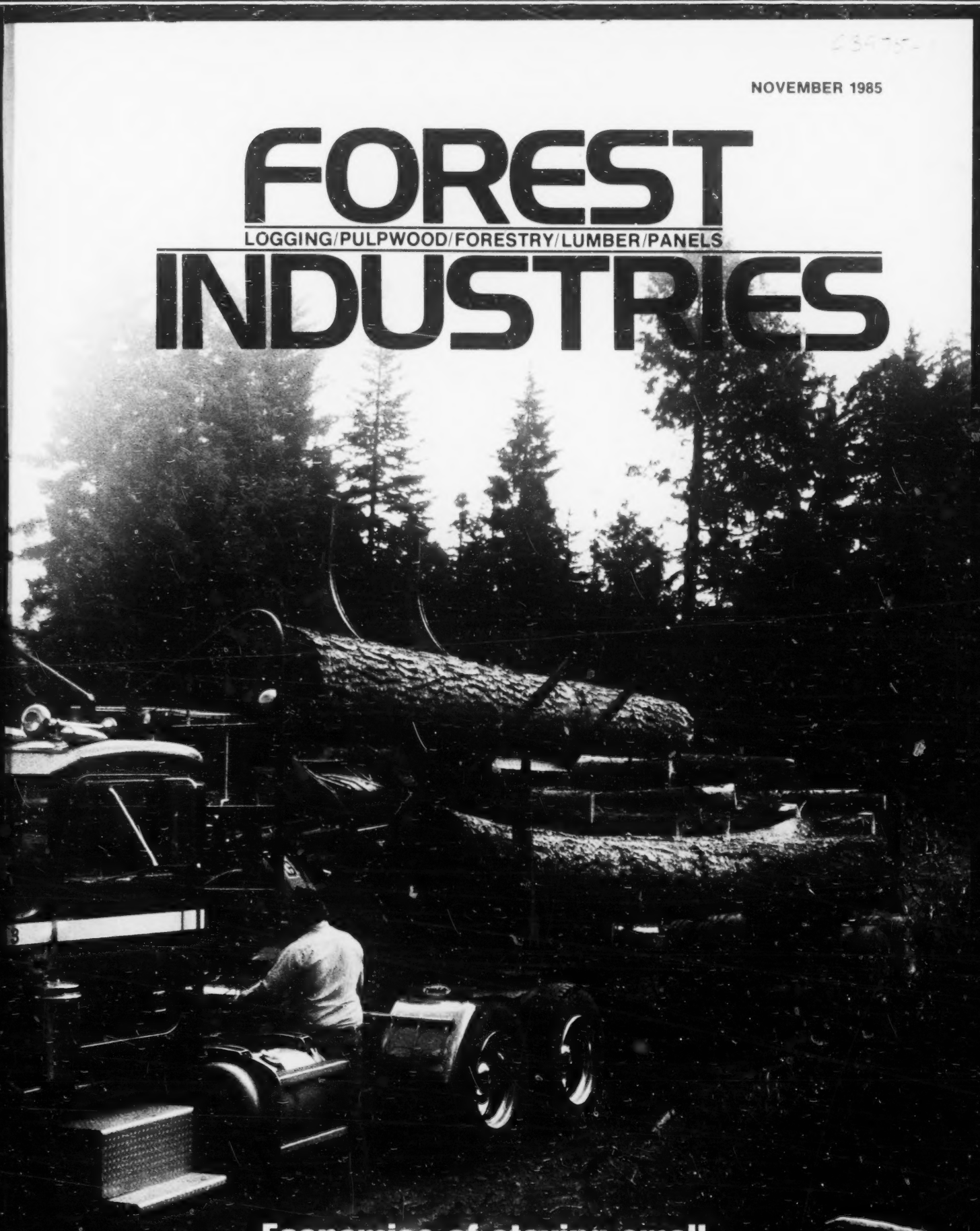
NOVEMBER 1985

FOREST INDUSTRIES

LOGGING/PULPWOOD/FORESTRY/LUMBER/PANELS



Economics of staying small pay off for veteran logger

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Exch	Company	Ticker Symbol	Closing Price 9/16/85	Closing Price 10/15/85	Net Chg in Period	% Chg in Period	P/E Ratio	Annual Div Rate	Annual Div Yield	52 Week High	52 Week Low
OTC	Bohemia Inc.	BOHM	10.88	11.50	.62	5.70	d	.10	.87	12.50	9.63
NYS	Boise Cascade	BCC	45.25	42.25	-3.00	-6.63	18	1.90	4.50	51.00	37.00
NYS	Bowater Inc.	BOW	22.88	22.63	-.25	-1.09	8	.72	3.18	25.88	19.75
NYS	Champion Intl	CHA	22.13	21.00	-1.13	-5.11	11	.52	2.48	25.38	19.00
NYS	Chesapeake	CSK	36.25	34.75	-1.50	-4.14	10	1.24	3.57	39.50	32.00
OTC	Consol. Paper	CPER	47.00	49.00	2.00	4.26	11	1.48	3.02	54.63	25.13
NYS	Crown Zellerbach	ZB	37.38	38.00	.62	1.66	18	1.00	2.63	44.88	27.88
NYS	Fed. Paper Board	FBO	17.75	18.88	1.13	6.37	18	.70	3.71	25.00	16.63
NYS	Ft. Howard Paper (H)	FHP	76.75	83.38	6.63	8.64	18	1.84	2.21	83.38	56.50
NYS	Georgia-Pacific	GP	21.75	20.88	-.87	-4.00	27	.80	3.83	27.38	20.50
ASE	Glatfelter (P.H.)	GLT	32.50	35.00	2.50	7.69	11	.88	2.51	35.75	20.50
NYS	Gr. Northern Nek.	GNN	35.00	36.50	1.50	4.29	12	1.52	4.16	41.75	32.25
NYS	Hammermill	HML	41.00	40.75	-.25	-.61	14	1.36	3.34	42.88	26.88
NYS	Intl Paper (L)	IP	48.13	45.88	-2.25	-4.67	18	2.40	5.23	57.75	44.25
NYS	James River	JR	33.50	32.50	-1.00	-2.99	10	.56	1.72	37.00	23.75
OTC	Jefferson Smurfit	JJSC	21.75	19.00	-2.75	-12.64	8	.40	2.11	25.25	15.00
NYS	Kimberly-Clark	KMB	60.88	61.63	.75	1.23	11	2.32	3.76	63.88	43.25
NYS	Koppers Corp. (L)	KOP	17.13	15.75	-1.38	-8.06	d	.80	5.08	21.88	15.38
OTC	Longview Fibre	LFBR	22.88	24.00	1.12	4.90	17	1.28	5.33	25.75	20.25
NYS	Louisiana-Pacific	LPX	18.13	18.88	.75	4.14	41	.80	4.24	25.13	17.63
NYS	Mead Corp.	MEA	39.75	37.13	-2.62	-6.59	11	1.20	3.23	44.75	33.00
OTC	Mosinee Paper	MOSI	15.00	14.63	-.37	-2.47	9	.36	2.46	16.25	11.75
NYS	Pacific Lumber (H)	PL	28.13	40.00	11.87	42.20	25	1.20	3.00	41.13	24.50
OTC	Pentair Inc.	PNTA	27.00	27.00	0.00	0.00	9	.68	2.52	31.25	18.38
NYS	Pope & Talbot	POP	17.25	17.75	.50	2.90	d	.80	4.51	21.50	15.25
NYS	Potlatch Corp.	PCH	34.63	35.50	.87	2.51	14	1.56	4.39	38.13	28.00
NYS	Scott Paper Co.	SPP	42.00	42.13	.13	.31	10	1.24	2.94	44.50	29.75
OTC	Sonoco Products	SONO	27.00	28.00	1.00	3.70	14	0.00	0.00	29.50	18.75
NYS	Southwest Forest	SWF	12.50	12.38	-.12	-.96	d	0.00	0.00	17.88	11.13
NYS	Stone Container	STO	27.00	26.00	-1.00	-3.70	12	.60	2.31	34.63	24.00
NYS	Temple-Inland	TIN	36.00	37.00	1.00	2.78	9	.64	1.73	40.38	31.13
NYS	Union Camp	UCC	37.13	36.00	-1.13	-3.04	12	1.64	4.56	41.75	33.25
NYS	Westvaco Corp.	W	36.50	37.00	.50	1.37	10	1.32	3.57	41.75	34.88
NYS	Weyerhaeuser Co.	WY	27.00	26.88	-.12	-.44	22	1.30	4.84	34.00	26.00
OTC	Willamette Ind.	WMTT	43.00	45.50	2.50	5.81	9	1.65	3.63	46.25	29.75
Canadian Forest Products Companies											
TOR	Abitibi-Price	—	20.63	21.25	.62	3.01	17	—	—	21.00	9.38
TOR	BC Forest Prod.	—	9.75	9.50	-.25	-2.56	—	.13	1.37	12.50	8.36
TOR	Canfor Ltd.	—	8.13	8.50	.37	4.55	d	0.00	0.00	13.88	7.63
TOR	Consol.-Bathurst	—	16.75	16.00	-.75	-4.48	13	.60	3.75	19.00	14.00
TOR	Crestbrook	—	7.50	7.25	-.25	-3.33	55	.05	.69	9.75	6.25
TOR	Domtar Inc.	—	19.00	18.88	-.12	-.63	7	1.40	7.42	22.38	14.50
MON	Donohue Inc.	—	17.00	16.25	-.75	-4.41	6	.72	4.43	19.50	14.63
TOR	Great Lakes (L)	—	19.75	17.00	-2.75	-13.92	18	.40	2.35	24.00	15.50
TOR	MacMillan Bloedel (L)	—	19.75	18.25	-1.50	-7.59	—	—	—	29.75	17.75

Market Diary

Most Active Issues

Largest dollar gainer	Pacific Lumber	+$11.87
Largest dollar loser	Boise Cascade	-$3.00
Largest percentage gainer	Pacific Lumber	+42.20%
Largest percentage loser	Jefferson Smurfit	-12.64%

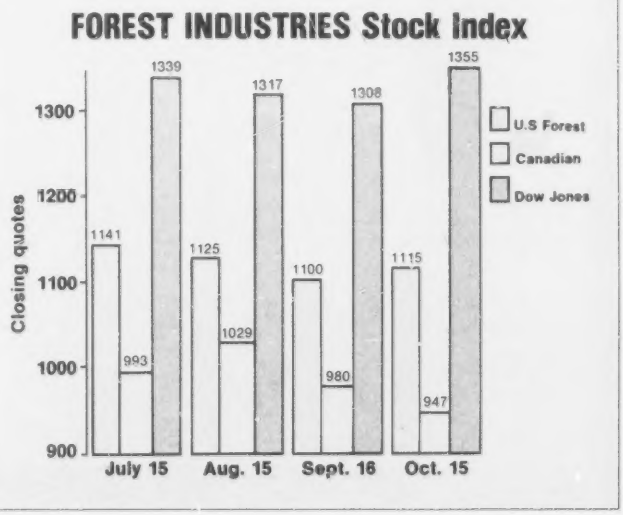
Advances, 19; Declines, 23; Unchanged, 2; New highs (H), 2; New lows (L), 4

Key
(H) = New High; (L) = New Low; (d) = Deficit
MON = Montreal; NYS = New York; ASE = American; OTC = Over the Counter; TOR = Toronto
All OTC quotes are represented as the bid price.
All Canadian quotes are in Canadian dollars.

	Close 9/16/85	Close 10/15/85	Net Chg in Pd	% Chg in Pd
Forest Industries Stock Index	1099.51	1115.49	15.98	1.45
Canadian Forestry Stock Index	980.11	946.66	-33.45	-3.41
Dow Jones Industrial Avg.	1307.68	1354.73	47.05	3.60
Standard & Poor's 500-Stock Index	182.91	186.37	3.46	1.89
Standard & Poor's 400 Industrials	204.05	207.94	3.89	1.91
NYSE Composite	105.85	107.64	1.79	1.69

Compiled by Nordby International Inc., Boulder, Colo. (303) 449-0326.

The information and statistics contained herein have been obtained from sources believed to be reliable, but are not guaranteed to be all-inclusive or complete. This is not to be construed as an offer or the solicitation of an offer to sell the securities herein mentioned. This information is subject to change without notice.



Output of the 4 billion bd ft treated lumber industry has grown while other forest sectors were fluctuating. Demand pull, smart marketing, good distribution are among reasons

Treated lumber: bright spot in wood economy

By Mel R. Walsh

BY ALL METHODS of measurement, the wood preservative industry is currently one of the most dynamic segments of the lumber industry in the United States.

This article provides an overview of that industry, using 10 points to describe the interrelationship of processing, distribution and market forces which have brought about the growth in treated lumber consumption.

First, it's important to define two key terms. *"Treated lumber,"* as used in this article, includes treated timbers and plywood as well as lumber. All are treated by a process known as *"pressure treating."* Preservative chemicals are forced into the wood inside a steel pressure chamber. The treatment prevents damage to the wood due to decay and insects for a minimum of 35 years, and probably much longer.

The 10 points are:

1. During the recent recession, treated lumber consumption increased 40% while total U.S. lumber use declined 30%.

Producing approximately 4 billion bd ft annually, the treated lumber industry is now the largest, and has been the fastest growing, segment of the entire pressure-treated wood industry, which also includes railroad ties, electric utility poles and piles (see Fig. 1).

It is significant to note that since 1977, about the time treated lumber sales began to take off, the market has grown from 1.5 billion bd ft to a 1984 level of between 3.5 to 3.9 billion bd ft—a growth rate of 12% to 14% per year (see Fig. 2).

Much of this rapid growth occurred from 1978 to 1982. That period saw total lumber consumption decline while treated lumber consumption grew.

Producing approximately 4 billion bd ft annually, the treated lumber industry is now the largest, and has been the fastest growing, segment of the entire pressure-treated wood industry

Treated lumber now accounts for about 8% of softwood lumber demand, versus less than 4% in 1977. In 1984, at least 25 to 30% of southern yellow pine lumber was treated.

2. Chromated copper arsenate (commonly known as CCA) is the most widely used lumber preservative.

About 95% of treated lumber is treated with CCA, a waterborne preservative composed of metallic salts. Most lumber treating plants consider CCA gives lumber the best available protection against rot or decay and insects, with few, if any, process problems. It requires less investment than other major preservatives, and is easier to handle.

Users report good durability. Test stakes have been in the ground for over 35 years without decay or termite damage. (Untreated stakes often last only three years in the ground.)

3. Almost three-quarters of pressure-treated lumber is produced in the South (see Fig. 3).

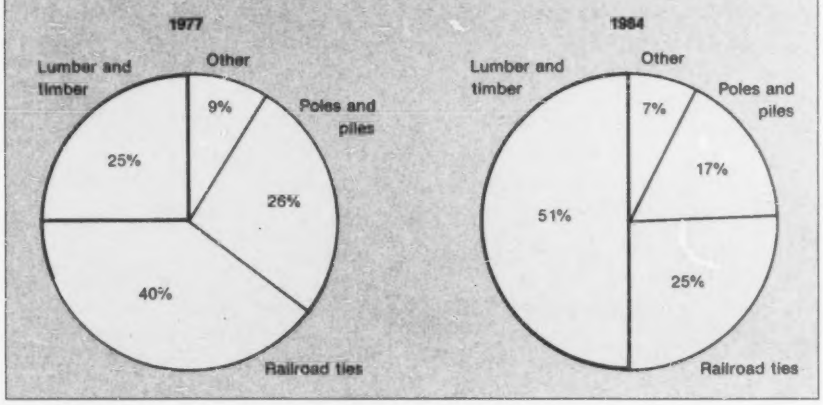
When southern yellow pine is well dried, its sapwood is easily penetrated by a wood preservative. It is abundantly available and offers good structural strength.

Pine from southern mills represents all the lumber treated in the South, the majority of that treated in the Northeast, and, along with ponderosa pine, most of the lumber treated in the Midwest.

The West primarily treats lumber made from its local species and species groups—Douglas fir and Hem-Fir. However, since these are relatively resistant to wood preservative penetration, they must be "incised" before treatment (passed through rollers equipped with teeth that sink into the wood, enabling acceptable wood preservative penetration).

Because the West is the source of decay-resistant species such as the increasingly scarce cedar and redwood, the

FIG. 1—Pressure-treating market changes



price gap between these and treated lumber is less than it is for the rest of the nation. As a result, treated lumber has not penetrated the West's residential remodeling market to the same extent it has in other regions.

However, treated lumber growth in the West is expected to occur faster than in other regions over the rest of the 1980s, as the price gap between treated lumber and decay-resistant species continues to widen.

4. Residential remodeling—primarily decks—is the dominant market for treated lumber.

Most treated lumber is used outdoors. Residential remodeling, the largest market, accounts for 40% of all treated lumber. It consists principally of decks, which with other outdoor uses—patios, porches, pool enclosures, balconies, etc.—represent close to 90% of retail treated wood sales for residential remodeling (see Fig. 4).

The next largest end use of treated lumber is new residential construction, mainly for the same outdoor uses mentioned above. But, in addition, contractors use treated lumber for sill plates, furring, wall studs, floor joists, permanent wood foundations, etc.

Between 7% and 10% of treated lumber is used on farms, largely in construction of pole barn buildings, fences and, on the West Coast, for grape stakes.

The nearly 10% used in non-residential construction is divided between projects such as marinas and bridges and building uses such as fire-treated lumber for commercial and institutional building interiors and regular treated lumber for exteriors and outdoor projects.

The "other" category of just under 10% includes government use such as highway guard rail posts, industrial use such as playground equipment, manufactured housing and fabricated parts, plus some application as mine timbers in the Northeast.

5. The product quality story of pressure-treated lumber has reached the mass market.

The wood preservative and pressure-treating industries, via the American Wood Preservers Assn. (AWPA), have set rigid product quality standards. A rigorous treating plant inspection program is carried out through the American Wood Preservers Bureau (AWPB) to insure compliance.

This inspection and related test program is extremely important. All CCA-treated wood has a green cast, but the retailer or consumer cannot use this as proof of proper treatment. The only way to be sure a piece of pressure-treated lumber meets standards is to subject samples to a laboratory analysis. This part of the program is also administered by the AWPB.

A second and extremely important factor in developing market acceptance of treated lumber has been the sizeable marketing effort carried out over the years by wood preservative suppliers, most notably Koppers Co. and Osmose Wood Preserving Co.

These companies have supplied their pressure-treating customers—mainly licensees—with a wide range of marketing services and materials. This has included extensive cooperative advertising with retailers, and very strong point of purchase programs and collateral materials.

An effective marketing tool has been the "warranty end-tag," stapled to the end of each piece of treated lumber where it can be seen by consumers.

6. Rapid expansion of home centers over the past decade has boosted acceptance of treated lumber.

Retailers at home centers increasingly have identified and promoted treated lumber as one of their most profitable lines. At some home centers, it accounts for one-quarter to one-third of lumber sales.

Today, close to 90% of all treated lumber flows through distribution. The remainder, slightly over 10%, that moves from treating plants directly to the market primarily goes to local contractors and farmers or to government and industry. Most wholesaler volume (about three-quarters) goes on to the retailer. This leaves the retailer accounting for over 80% of the sales of all treated lumber to end users. Contractors account for most of the one-quarter of wholesaler sales not going to retailers.

Retailers sell almost one-half of their treated lumber directly to consumers, and over 40% is sold to home improvement, residential and non-residential contractors. The majority of contractor purchases are from retailers. (Readers who wish to have a detailed flow chart tracking treated lumber from treater to end use can get a copy from the author at the address given on p. 38.)

7. The consumer has emerged as the dominant buying force, affecting the market both directly and indirectly.

Strong consumer acceptance of treated lumber has made this industry a profitable and large growth industry.

Consumers use 40% of all the treated lumber sold, representing fully 50% of the treated lumber sold by retailers.

However, even this sizeable amount probably understates the full consumer influence on the industry. For example, much of the contractor use of treated lumber is directed to outdoor projects, such as decks, similar to projects the consumer builds.

8. Two-inch dimension lumber plus 4-in. and larger timbers comprise over 80% of all treated lumber sales. This is one of several distribution and production factors involved in the market for treated lumber products.

The treated lumber product mix is fairly consistent throughout all regions of the U.S. (see Table 1).

The dominance of 2-in. dimension lumber and timbers is, of course, related to its heavy use in residential remodeling projects such as decks.

Fencing is the primary use of 1-in. boards.

FIG. 2—Treated lumber growth trend

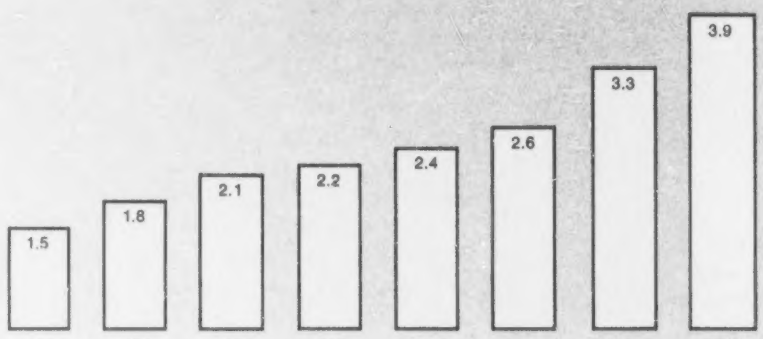
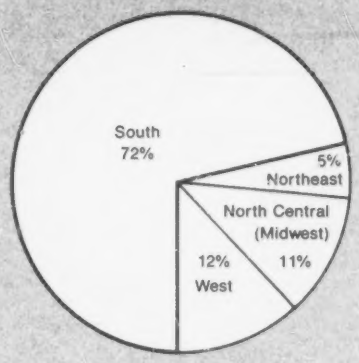


TABLE 1—Treater shipments by product type

Product type	Percent of total shipment
2-in. dimension	55
1-in. boards	9
4-in. and larger	22
Landscape timbers	6
Permanent Wood Foundation	2
Fire-retardant	4
Other plywood	2
TOTAL	**100**

FIG. 3—Location of pressure-treating activity



Use of fire-treated lumber to date has been related primarily to commercial and institutional interior building construction.

Popularity of the Permanent Wood Foundation (PWF) is growing, but it still represents a relatively small part of treated lumber sales.

No. 2. is the dominant lumber grade, used for over 80% of all treated lumber. Some No. 1. is used, mainly by those desiring a better-looking deck.

A declining 25% of treated lumber is treated for above-ground use at the .25 retention level. (Retention is measured in pounds of wood preservative contained in each square foot of wood after treatment, thus a .25 retention level means one-quarter pound of preservative for every cubic foot of wood. See Fig. 5.)

On the other hand, a growing 55% is treated to .40, which is the ground contact standard. A number of retailers and wholesalers stock only .40 treated lumber, thereby eliminating the need to carry two inventories (.25 and .40).

Some treaters who use the Koppers Wolmanized system treat lumber to a .30 retention level in an attempt to provide themselves and their distribution customers with a single inventory. Because .30 is not approved by the AWPA for ground contact, it has not become a single inventory line for many retailers.

Kiln Dried After Treatment (KDAT) for a small up-charge enhances the appearance of treated lumber and reduces its weight for transport. About 20% of treated lumber is KDAT, and about 40% of the treating plants perform this service on at least some of their production.

About 85% to 90% of the treating plants engage in Treating Service Only (TSO) to some extent. This service involves a treater who will treat lumber owned by another—usually a wholesaler or retailer—for a fee.

Perhaps 20% to 30% of all treated lumber is produced on a TSO basis.

Georgia-Pacific Corp. is probably the largest marketer of treated lumber in the U.S. The company does not treat lumber, but obtains most of its treated lumber from TSO suppliers.

9. Most treating plants are aggressive small or medium-sized businesses.

Approximately 80% of an estimated 400 lumber treating plants have sales below $8 million. Most are in the South and about half are independent businesses. Another 20% are part of a treating plant chain, most of these with two locations. A few have up to five locations.

About 15% of the treating plants are either part of an integrated forest products company, or are an offshoot of a sawmill. Some treating plants are also affiliated with wholesalers and retailers. Over half of all lumber treaters are licensees of Koppers Co. or Osmose Wood Preserving Co.

10. Strong, steady growth of the treated lumber industry is anticipated.

In 1978 on a constant dollar basis (1972 dollars), one-third of a board foot of treated lumber was used for every dollar that was spent for residential remodeling.

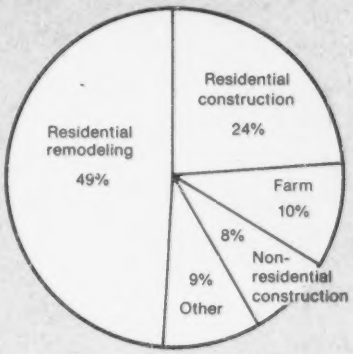
From 1978 to 1981, this rose 20% per year to almost three-fifths of a board foot. From 1981 to 1984 this market penetration ratio slowed its rate of increase to between 5% and 10% per year.

From 1984 to 1987, the ratio is expected to increase between 3% to 5% per year. Actual footage growth should be greater since the market itself is growing.

Total demand for treated lumber on a footage basis from 1984 to 1987 is forecast to be at least 4% per year—exceeding growth estimates for the national economy.

However, this estimate may be conservative. The AWPB, whose figures include about two-thirds of the industry's volume, reports that as of the first eight months of 1985, treated lumber volume was up 24% over the same period last year—largely due to an extremely strong summer sales surge.

FIG. 4—Markets for treated lumber



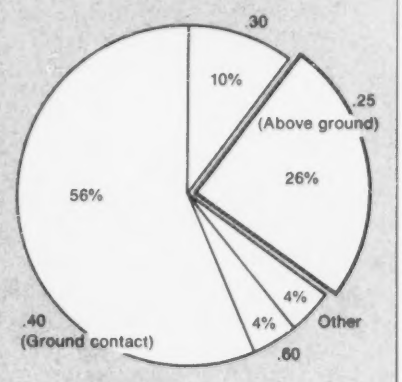
One factor supporting continued strong demand for treated lumber is the increasing movement of treaters into specialty product and market niches—Permanent Wood Foundations, fire-treated lumber, specially machined and sized dimension lumber for decks, the addition of weathering agents to wood preservatives, more attractive deck and other outdoor project designs, deck kits, etc. And, even though color tints have been around a long time, more are in evidence.

There is at least one factor which clouds the future. Negotiations are currently underway between the industry and the Environmental Protection Agency in respect to the future use of CCA. It is important to the wood treating industry that these be worked out without the imposition of significant restrictions.

Although there is no clear alternative to CCA today, that may change. Chemical companies relatively new to this industry are contemplating new wood preservative products.

These new products promise effectiveness similar to or better than CCA, with lower toxicity and more environmental safety. ■

FIG. 5—Treated lumber retention levels



THE AUTHOR is president of M. R. Walsh Consultants, a marketing-oriented management research firm located at 2805 Butterfield Rd., Oak Brook, Ill. 60521. This article has been drawn from several of Walsh's wood preservative marketing investigations, including "Treated Wood Study," an in-depth analysis which was a cooperative effort between Walsh and Bernard Fuller, vice president of Resource Information Systems Inc., Bedford, Mass., a forest products forecasting and economics service.